

# ENVIRONMENTALLY FRIENDLY DISPOSABLE HYGIENIC PRODUCT

## BACKGROUND OF THE INVENTION

5 The present invention relates to a hygienic product,  
and more particularly to a disposable hygienic product  
that includes plastic materials having proper  
percentages of calcium carbonate and being mechanically  
formed into shape, so that the hygienic product has  
10 fully burnable EVA web and backing plastic sheet and  
is therefore environmentally friendly.

There are various disposable hygienic products,  
including diapers and pants-shaped diapers for infants,  
15 old people and patients, paper pants, and sanitary  
napkins and pads for women, being widely used in our  
daily life. These products are constantly modified to  
improve their functions and material quality. For this  
purpose, it is inevitable to add many plastic materials  
20 to the originally included natural materials. These  
plastic materials, when being burned, produce colloidal  
materials that stick to inner wall surfaces of an  
incinerator to reduce the usable life of the incinerator.  
Thus, it is necessary to periodically clean the  
25 colloidal materials from the inner wall surface of the  
incinerator. As a matter of fact, it is difficult to  
clean the colloidal materials. The existing  
disposable hygienic products therefore form a big

problem in the environment protection.

#### SUMMARY OF THE INVENTION

5 It is therefore a primary object of the present invention  
to provide an environmentally friendly disposable  
hygienic product that includes fully burnable natural  
and plastic materials. The disposable hygienic  
product of the present invention could be burned into  
10 powder that is not combustion supporting and does not  
stick to the inner wall surfaces of the incinerator.  
Costs for cleaning the inner wall surfaces of  
incinerator can therefore be saved while the  
incinerator could have prolonged service time and life  
15 without producing large amount of black smoke and toxic  
gases during incinerating.

Another object of the present invention is to provide  
an environmentally friendly disposable hygienic  
20 product that includes plastic materials that could be  
easily treated and processed to form the hygienic  
product and is therefore cost effective.

#### BRIEF DESCRIPTION OF THE DRAWINGS

25 The structure and the technical means adopted by the  
present invention to achieve the above and other objects  
can be best understood by referring to the following

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detailed description of the preferred embodiments and  
the accompanying drawings, wherein

Fig. 1 is a perspective view of a sanitary napkin  
5 according to a first embodiment of the present invention,  
a part of which is separated to show an internal structure  
thereof;

Fig. 2 is an enlarged sectional view of the sanitary  
10 napkin of Fig. 1; and

Fig. 3 is a perspective view of a pants-shaped disposable  
diaper according to a second embodiment of the present  
invention.

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#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

There are various commercially available hygienic  
products of different brands and designs, including  
20 sanitary napkins and pads for women, disposable diapers  
for babies, disposable diapers for old people and  
patients, etc. These hygienic products structurally  
includes three parts, namely, a surface layer usually  
made of non-woven cloth and EVA web, an absorbent layer  
25 usually made of pulp and high molecular polymer, and  
a back layer usually made of a plastic material. Figs.  
1 and 2 are perspective and enlarged sectional views,  
respectively, of a disposable sanitary napkin 10

according to a first embodiment of the present invention.

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The sanitary napkin 10 is usually attached to an inner  
5 side of a waterproof plastic wrapper 20 via an adhesive  
strip 18 applied on a backside of the sanitary napkin  
10, and then folded and packed in the wrapper 20. To  
use the sanitary napkin 10, simply tear open the wrapper  
20 and remove the sanitary napkin 10, extend and attach  
10 the sanitary napkin 10 to a crotch of user's underwear  
(not shown) by means of the adhesive strip 18.

Each piece of the sanitary napkin 10 includes at least  
an EVA web 12, which has been widely adopted by about  
15 65% to 70% of existing sanitary napkin manufacturers  
to replace the non-woven cloth as the surface layer  
of sanitary napkin. The EVA web 12 provides comfortable  
touch and includes a plurality of tiny holes that allow  
menstrual blood to quickly pass through the surface  
20 layer and enter the absorbent layer to keep a contact  
surface between the user's body and the sanitary napkin  
10 dry and comfortable.

Portions of the sanitary napkin 10 sequentially located  
25 below the EVA web 12 are high molecular absorbent 16  
having a predetermined thickness and backing plastic  
sheet 14. The high molecular absorbent 16 is located  
between the EVA web 12 and the backing plastic sheet

14 and is an important part having influence on the performance of the sanitary napkin 10. The high molecular absorbent 16 mainly consists of pulp and high molecular polymer that is a plastic material. This type of material absorbs liquid and expands to hold the absorbed liquid. Menstrual blood could be "locked" in the high molecular polymer without causing an overflowed absorbent layer. The backing plastic sheet 14 is a thin and watertight plastic film capable of isolating and preventing liquid from penetrating therethrough. Most sanitary napkins 10 have a back layer formed of the backing plastic sheet 14 in order to be watertight. To prevent the sanitary napkin 10 from moving relative to the user's underwear, adhesive 18 is provided at an outer surface of the backing plastic sheet 14, so that the entire sanitary napkin 10 is adhesively attached to the crotch of the user's underwear. In most cases, the adhesive 18 is provided in the form of a long and wide strip. In other cases, the adhesive 18 may be in the form of spots or multiple narrow strips (not shown). It is also possible for the backing plastic sheet 14 and the wrapper 20 to be integrally formed at the same time, so that the sanitary napkin 10 is more convenient and comfortable for use.

Please refer to Fig. 3 that is a perspective view of a pants-shaped disposable diaper 22 according to a second embodiment of the present invention and suitable

for babies, and adults and patients suffering from incontinence. Generally, a conventional disposable diaper is used with a waterproof wrap, while a pants-shaped disposable diaper 22 serves as a whole  
5 piece of underwear. The pants-shaped disposable diaper 22 is mainly formed from a large amount of high molecular absorbent 24 and possesses extremely high absorbing ability. The pants-shaped disposable diaper 22 is designed for snugly fitting on a wearer and includes  
10 a diaper portion having locating adhesive strips 28 provided at two lateral sides and comfortable hems provided at crotch holes (not shown). Leakproof ruffles 30 are provided along two crotch holes of the pants-shaped disposable diaper 22 to prevent an  
15 overflowed diaper even at a large amount of urine. Repeatedly useable adhesive areas 26 are provided at two lateral sides of the diaper 22 closely below a waist portion thereof. By attaching the locating adhesive strips 28 to the repeatedly usable adhesive areas 26,  
20 the pants-shaped disposable diaper 22 could be adjustably fitted to the wearer's waist. The entire diaper 22 is coated with a backing plastic layer 32. Some pants-shaped disposable diapers 22 are even featured with wet indicating means, highly absorbent  
25 and highly air-permeable material, etc.

For the disposable hygienic products of the present invention to be environmentally friendly, natural

materials that could be fully burned and the following plastic materials are used to manufacture different parts of the products:

- 5 1. Backing plastic sheet: This part consists of 40% EVA plastics, 10% LDPE (low density polyethylene), 2% stearic acid, 9% PE and wax, and 39% or more calcium carbonate. These materials are mixed and vacuum dried to a controlled temperature between 135°C and 10 220°C. The dried mixture is then rotatably extruded to produce pliable and dual-color backing plastic sheet that is environmentally friendly and fully burnable.
- 15 2. High molecular absorbent: This part consists of 35% natural wood fiber and 65% natural cotton that are mix-spun and then woven with a needle-bonded fabric (nonwovens) loom into highly loose wool, which is treated under high temperature to form a shaped high 20 molecular absorbent.
- 25 3. EVA web: This part consists of materials having the same types and percentages as those for the backing plastic sheet. The mixed materials are treated with an L-type calender having an embossed roller to produce an air-permeable EVA web that is fully burnable and therefore environmentally friendly.

In brief, the disposable hygienic product of the present invention includes natural and plastic materials that could be fully burned into powder that is not combustion supporting and does not stick to the inner wall surfaces of the incinerator. Costs for cleaning the inner wall surfaces of incinerator can therefore be saved while the incinerator could have prolonged service time and life without producing large amount of black smoke and toxic gases during incinerating.

The present invention has been described with a preferred embodiment thereof and it is understood that many changes and modifications in the described embodiment can be carried out without departing from the scope and the spirit of the invention that is intended to be limited only by the appended claims.